

PATENT SPECIFICATION

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15. Aug. 1935

PROVISIONAL SPECIFICATION

Apparatus for Delivering a Predetermined Quantity of Liquid

We, ALFRED DEGORY, ROBERT STUART HAWKINS and CECIL JACK HENRY LITOVITZ, of British subjects, trading as DAVID ALAN & COMPANY, of 18, South 6 End, Kensington, London, W.8, do hereby declare the nature of this invention to be as follows:—

This invention relates to apparatus for delivering a predetermined quantity of liquid such, for example, as upper cylinder oil into the petrol tank of a motor vehicle.

The apparatus provided in accordance with the invention consists of a gun having a pump in the barrel thereof and means for supporting a container on the gun so that liquid can be withdrawn from the container into the barrel on the suction stroke of the pump and discharged from the barrel on the compression stroke of the pump.

The invention also consists in a gun for delivering predetermined quantities of liquid having the features hereinafter described or indicated.

In carrying the invention into effect in one convenient manner there is provided a portable gun having a piston in the barrel thereof connected with a trigger so that actuation thereof displaces the piston for the suction stroke against the action of a spring which serves to return the piston on release of the trigger to discharge liquid drawn from a container supported on the gun into the barrel upon the suction stroke of the piston, the liquid being discharged, for example, through a nozzle provided at the outer end of the barrel.

The container which holds the supply of liquid to be discharged from the gun in predetermined quantities may conveniently be supported along the outside of the barrel by the conventional discharge outlet, which projects beyond the container body, being seated within a socket provided on the barrel at the outer end thereof and the bottom portion of the container, including the actual bottom thereof, being held within a suitably shaped housing provided at the trigger end of the barrel. This housing may consist of a pair of side plates, fixed in

spaced relationship to the outside of the barrel so as to permit of the passage of the container body between them, and a further pair of side plates which form a continuation of the previously defined side plates at the trigger end thereof and are closed at their rear ends by a further plate against which the bottom of the container bears. These last-mentioned side plates together with the bottom plate connected between their rear ends are mounted upon the gun in a resilient manner so as to permit of the insertion of the container between the socket and the bottom plate and to exert pressure upon the container to hold it against the seating of the socket. For example, this movable part of the container housing may be provided with a base plate having a flange at the inner end which projects into a recess formed at the top of the handle of the gun and receives a bolt which is passed through the outside wall of the recess and screwed into the opposite wall thereof. A spring is provided within the recess between the flange and the outside wall of the recess, which spring surrounds the bolt spindle and operates to maintain the required pressure on this movable housing part in a direction towards the socket while permitting this housing part to be moved in the opposite direction when the container is being secured in position upon the gun.

The socket has a bore formed through its seat which is normally maintained closed by means of a resiliently urged non-return valve and communicates through a bore in the barrel wall with the interior of the barrel.

The nozzle at the outer end of the barrel may be separately formed and be screwed upon the barrel and the nozzle bore is fitted with a non-return valve which is normally maintained closed by the action of a spring.

The non-return valves in the socket and in the nozzles may consist of balls which are held to their seatings by means of springs and access to these valve parts may be had by providing the outer ends of the socket and nozzle with a removable cap or plug which, in the case of the

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nozzle, is formed with a central bore which forms a continuation of the nozzle bore and may be covered by a cap fitted over the end of this plug when the gun 5 is not in use.

The handle of the gun may be of hollow construction and the inside end wall thereof is preferably inclined so as to form an acute angle with the gun barrel.

10 The gun trigger is preferably inclined in

a like manner and to the same extent with the result that when in use there is a natural tendency for the gun to be pointed downwardly.

The invention is not limited to the 15 above details but is capable of modification to meet the particular requirements or conditions which exist.

Dated this 10th day of May, 1934.

MARKS & CLERK.

COMPLETE SPECIFICATION

Apparatus for Delivering a Predetermined Quantity of Liquid

We, ALFRED DECORY, ROBERT STUART
20 HAWKINS and CECIL JACK HENRY,
LINOVITZ, all British subjects, trading as
DAVID ALAN & COMPANY, of 18, South
End, Kensington, London, W.8, do
hereby declare the nature of this inven-
25 tion and in what manner the same is to
be performed, to be particularly described
and ascertained in and by the following
statement:—

This invention relates to apparatus for
30 delivering a predetermined quantity of
liquid such, for example, as upper
cylinder oil into the petrol tank of a motor
vehicle of the kind having a pump in
association with a container for the liquid
35 of which a predetermined quantity is
drawn from the container into the pump
cylinder on the suction stroke of the pump
piston and is discharged from the pump
cylinder on the return stroke of the pump
40 piston, the operation of the pump being
such that normally the pump piston is at
the end of its return stroke so that the
pump cylinder is normally empty.

The invention consists in apparatus of
45 the kind described wherein the pump
cylinder and the piston are disposed
externally of the liquid container.

In the accompanying drawings,

Figure 1 is an elevational view of one
50 form of the invention showing the liquid
container removed.

Figure 2 is a longitudinal section of
Figure 1, but showing a slightly modified
discharge nozzle.

65 Figures 3 and 4 are similar views of a
modification, and

Figure 5 is a longitudinal section of a
further modification.

In carrying the invention into effect in
60 one convenient manner as illustrated in
Figure 1 there is provided a portable
apparatus having a piston 1 in the pump
cylinder 1a thereof connected with a trig-
ger 2 so that actuation thereof displaces
65 the piston for the suction stroke against
the action of a spring 2a which serves to
return the piston on release of the trigger

to discharge liquid drawn from a con-
tainer 3 supported on the apparatus into
the pump cylinder upon the suction
stroke of the piston, the liquid being dis-
charged, for example, through a nozzle 4
provided at the outer end of the pump
cylinder.

The container which holds the supply 75
of liquid to be discharged from the
apparatus in predetermined quantities
may conveniently be supported along the
outside of the pump cylinder by the con-
ventional discharge outlet 5, which pro-
30 jects beyond the container body being
seated within a socket 6 provided on the
pump cylinder at the outer end thereof
and the bottom portion of the container,
including the actual bottom thereof, being
85 held within a suitably shaped housing pro-
vided at the trigger end of an extension
of the pump cylinder. This housing may
consist of a pair of side plates 7 fixed
in spaced relationship so as to permit of
90 the passage of the container body between
them, and a further pair of side plates 7a
which form a continuation of the pre-
viously described side plates at the trigger
end thereof and are closed at their rear
95 ends by a further plate 8 against which
the bottom of the container bears. These
last-mentioned side plates 7a together
with the bottom plate 8 connected between
their rear ends are mounted in a resilient
100 manner so as to permit of the insertion of
the container between the socket 6 and
the bottom plate and to exert pressure
upon the container to hold it against the
seating of the socket. For example, this
105 movable part of the container housing
may be provided with a base plate 9
having a flange 10 at the inner end which
projects into a recess 11 formed at the top
of the handle 12 and receives a bolt 13
110 which is passed through the outside wall
of the recess and screwed into the opposite
wall thereof. A spring 14 is provided
within the recess between the flange and
the outside wall of the recess, which
115 spring surrounds the bolt spindle and

operates to maintain the required pressure on this movable housing part in a direction towards the socket 6 while permitting this housing part to be moved in the opposite direction when the container is being secured in position.

The socket (which is fitted with an air vent 25 controlled by a resiliently mounted valve 26) has a bore 16 formed through its seat which is normally maintained closed by means of a resiliently urged non-return valve 18 and communicates through a bore 17 in wall of the pump cylinder with the interior of 15 the latter.

The nozzle 4 at the outer end of the pump cylinder may be separately formed and be screwed upon the pump cylinder and the nozzle bore 13 is fitted with a non-return valve 19 which is normally maintained closed by the action of a spring 20.

The non-return valves in the socket and nozzle may, as shown, consist of balls which are held to their seatings by means of springs and access to these parts may be had by providing the outer ends of the socket and nozzle with removable caps or plugs 21, 22. The plug 21 provided on the nozzle is formed with a central bore 23 which forms a continuation of the nozzle bore and may be covered by a cap 24 fitted over the end of this plug when the apparatus is not in use.

The handle of the gun may be of hollow construction and the inside end wall thereof is preferably inclined so as to form an acute angle with the pump cylinder. The trigger is preferably inclined in a like manner and to the same extent with the result that when in use there is a natural tendency for the apparatus to be pointed downwardly.

The apparatus according to Figures 3 and 4 comprises a hollow cylindrical body 27 which is open at its rear end so that a container 28, holding the liquid to be dispensed, may be inserted within the body and retained therein by a cover plate 29 which is removably secured to the rear end of the body 27 by screws 30, for example, and is provided, at the top and bottom, with rearwardly directed plates 31 to the rear ends of which the handle 32 is secured. The container is preferably made of glass or other transparent material which renders the contents of the container visible through openings 33 in the body 27. The container is open at both ends and is seated against washer rings 34. A rod 35 passes through the container and carries at its rear end, the trigger 36, and at its forward end, the piston 37. The trigger is removably secured to the rod 35, for example, by a nut 36a engaging screw threads at this

end of the rod, and the trigger is guided for longitudinal motion within a slot 38 formed in an open-ended housing 39 for the upper end of the trigger. The arrangement permits ready access to be made to the screws 30 and the nut 36a so that these may be removed to permit of the removal from the body 27 of the handle 32 and, with it, the end cover plate 29, so that the container 28 is accessible for removal. To fill the container it is merely necessary to remove the filling cap 40 provided on the outside of the cover plate 29.

At its forward end the container 28 is in open communication with a bore 41 fitted with a non-return suction valve 42 which opens during the suction stroke of the piston 37 to permit a charge of liquid to be delivered via the further duct 43, from the container into the pump cylinder 44.

The suction stroke of the piston occurs through actuation of the trigger and against the action of a spring 45 which serves to return the piston on release of the trigger to eject the charge of liquid in the pump cylinder 44 through the bore 46 of a nozzle 47, which bore is normally closed by a non-return resiliently mounted valve 48.

The apparatus according to Figure 5 comprises a pump cylinder 49 fitted with a hand plunger (or piston) 50 which on its suction strokes draws a charge of liquid from a container 51 into the pump cylinder. The neck of the container is screwed into a socket 52 provided on the apparatus and the liquid passes from the container to the pump cylinder via a non-return suction valve 53 and duct 54. The apparatus is held in one hand by the handle 55 while the other hand is employed to actuate the knob 56 of the plunger 50 against the action of the spring 57 which serves to return the plunger on release of the knob to cause the charge of liquid in the pump cylinder to be ejected therefrom and discharged through the bore 58 of the nozzle 59, which bore is normally closed by the non-return valve 60.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. Apparatus of the kind referred to wherein the pump cylinder and its piston are disposed externally of the liquid container.

2. Apparatus according to Claim 1 wherein the pump cylinder and its piston are disposed at one end of the liquid container and an actuating trigger for the

piston and a carrying handle are disposed at the other end of the liquid container, the trigger and piston being connected together by a spindle which passes through the interior of the liquid container.

3. Apparatus according to Claim 2 wherein the liquid container is open at both ends and is seated against washer rings carried by the handle and pump parts.

4. Apparatus according to Claim 1, 2 or 3 wherein the container is made from transparent material and is visible from the outside.

5. Apparatus according to Claim 1 comprising a socket on the outside of the pump cylinder adapted to receive the neck of the liquid container and an adjustable abutment adapted to engage with the opposite end of the container.

6. Apparatus according to Claim 5 comprising a socket for receiving the open end of the liquid container and having a suction valve for permitting a charge of liquid to flow from the container into the pump cylinder on the suction stroke of the piston therein.

7. Apparatus according to Claim 4 or 5 comprising a nozzle at the discharge end of the pump cylinder provided with a valve which is opened to permit of a charge of liquid in the pump cylinder being ejected therefrom through the nozzle on the return stroke of the piston.

8. The improved liquid dispenser substantially as described herein and illustrated in the accompanying drawings.

Dated this 13th day of February, 1935.

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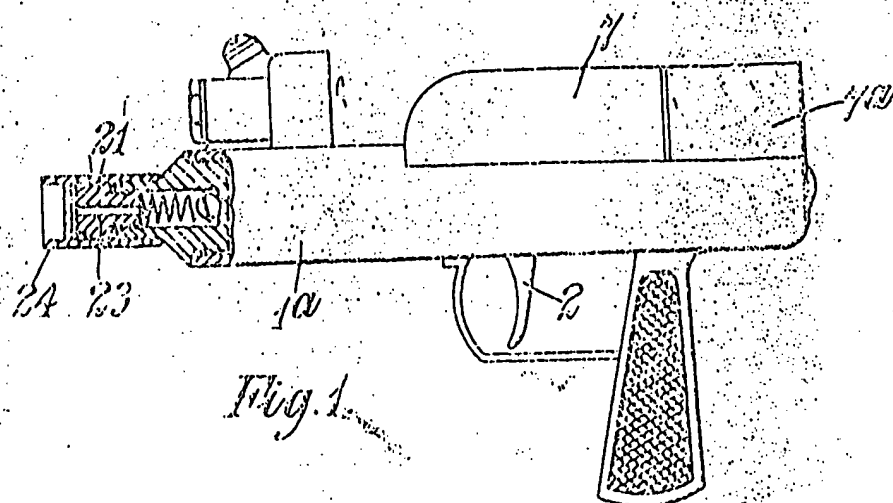


Fig. 1.

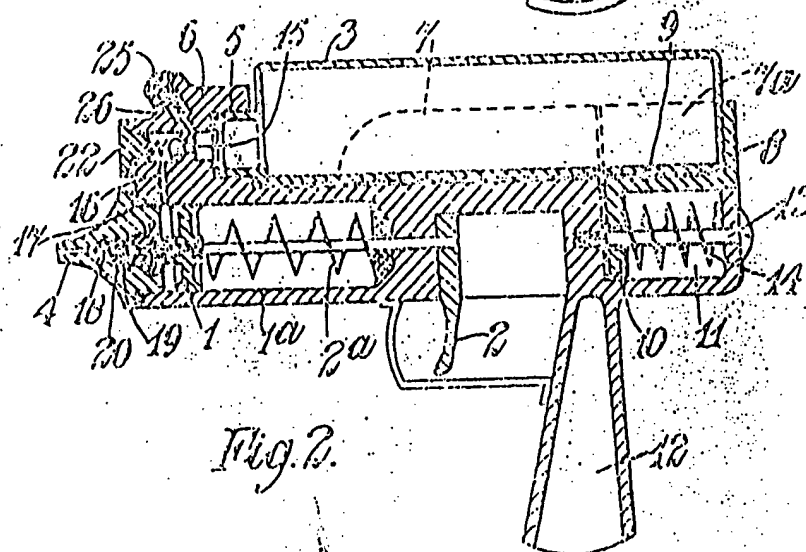


Fig. 2.

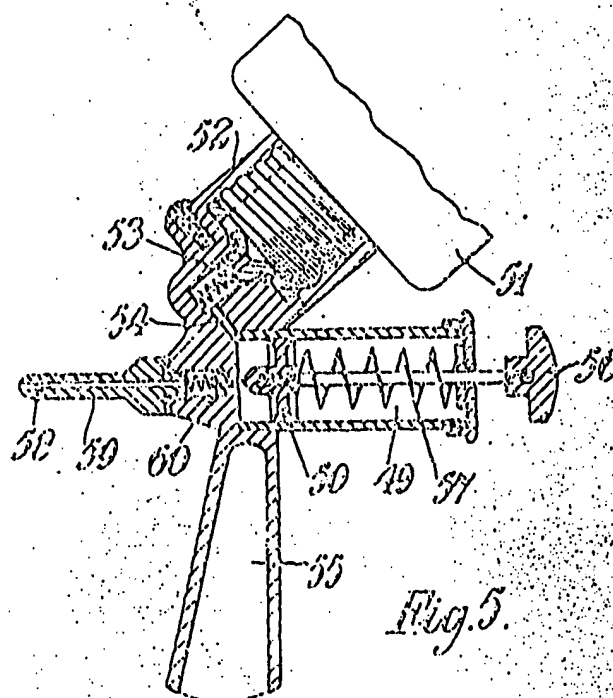


Fig. 5.

[This Drawing is a reproduction of the Original on a reduced scale.]

